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Federal Communications Commission
Office of the Secretary

Re: MM Docket No. 87-268

Dear Ms. Searcy: February 3, 1989

Enclosed for association with the record in the above proceeding are six copies of a February 1, 1989 letter from CBS to Rep. Edward J. Markey in response to his request for the views of interested parties "concerning methods for optimizing American participation in the development of advanced television technologies and derivative products." Attached to that letter is a CBS-prepared report entitled "Advanced Television Standards and Their Impact on United States Exports."

Please direct any questions to the undersigned.

Yours truly,

Mark W. Johnson
Washington Counsel

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George Vradenburg III
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EX PARTE

Dear Congressman Markey: February 1, 1989

CBS is submitting these comments in response to your request for views "concerning methods for optimizing American participation in the development of advanced television technologies and derivative products."

CBS has, as you know, been vitally interested and involved in the development of advanced television technologies for many years. Currently, CBS President and Chief Executive Officer Laurence A. Tisch serves on the FCC's Advisory Committee for Advanced Television; CBS Engineering and Development Vice President Joseph Flaherty serves as Chairman of the Planning Subcommittee of the FCC's Advisory Committee; and Mr. Flaherty and I are directors of the broadcast industry's Advanced Television Test Center.

CBS is interested in High Definition Television technologies for several reasons:

- HDTV production equipment promises to provide an efficient, effective and economic option to the 35mm film medium now widely used in producing television programs.
- HDTV promises dramatically to improve the picture and sound quality of television programming available to the American viewer.
- HDTV program exports will support levels of domestic program expenditures essential to maintaining the quality and diversity of the television industry.

CBS thus appreciates the opportunity afforded by your invitation, Mr. Chairman, to offer its views on how this country might optimize its role in the development of advanced television technologies and derivative products.

Specifically, CBS would make the following points.

First, we would urge Congress not to lose sight of the interests of American television viewers as it assesses American participation in the development of advanced television technologies. Those viewers will look for and expect a broad array of diverse HDTV programming before they buy a new HDTV television set. And the ability of the American broadcasting industry to maintain the quality and diversity of programming to which Americans have come rightly to expect is vitally dependent on the industry's ability to produce and to transmit programs in high definition. Not until new HDTV production and transmission systems and standards are developed and become widely-accepted will such programming become available.

Second, the development of a single, world-wide HDTV production standard is vital to support the levels of domestic program expenditures needed to maintain the current quality and diversity of American television programming and to achieve the positive trade balances historically enjoyed by American television producers.

Not much attention has been paid to the potential effects on international trade in video entertainment products (i.e., "software") in the recent debates about advanced television technologies. In fact, this country has a natural world-wide competitive advantage in the export of video entertainment products because of the size of the English-speaking market and a free and open international program exchange. "Fortress Europe" is well aware of this United States advantage and is seeking to utilize advanced television technology developments to cut off European outlets for American products and to reduce the competitive edge this country has in the production and distribution of video entertainment products.

Should Europe be successful in erecting non-tariff trade barriers to the export of this country's video entertainment products, jobs in the entertainment industry may be adversely affected. For this reason, there has been substantial support in the motion picture and television industry -- and in the unions representing workers in that industry -- for a single world-wide electronic production standard.

While development of video production standards has been, and should remain, the responsibility of the private sector, the Federal government -- through its diplomatic and trade arms -- plays a vital role in assuring that our trade partners not utilize the international standard-setting process as a means of developing non-tariff trade barriers to the export of American video product.

Because the potential adverse effects of fragmented world-wide HDTV production standards on American trade has not been widely understood, CBS has prepared the attached report on that subject for your consideration.

Third, the development of a domestic transmission standard suitable for all domestic mass media is vital to the development of low-cost mass-produced consumer HDTV equipment. The Federal government, through the Federal Communications Commission, has historically set such domestic transmission standards, and it should be encouraged by Congress to do so for HDTV.

The cost to consumers of new HDTV television receivers will bear a direct relationship to the size of the market for those receivers and to their manufacturing costs. Should multiple transmission systems be used by the mass media, the market for an HDTV receiver capable of receiving any one of those systems will be smaller; on the other hand, receivers capable of receiving all possible transmission schemes will be more costly to manufacture. In either event, the burden on the American consumer from multiple transmission systems may be substantial and should be avoided.

Fourth, the development of a competitive marketplace in HDTV manufacturing is critical to the development of low-cost HDTV receivers.

Many have expressed a concern that foreign manufacturing companies will develop a dominant position in HDTV manufacturing, with adverse effects on American trade, jobs and component industries. We believe that these potential adverse effects have been exaggerated.

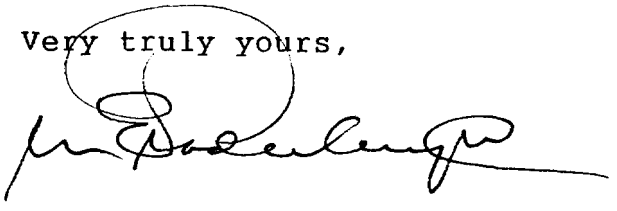
Put simply, HDTV receivers sold in the United States market will be manufactured primarily in plants located in this country no matter what the national origin of the transmission technology we employ in the United States. This country should not compromise the quality of its domestic transmission system -- to the detriment of American television viewers -- in the speculative hope that the choice of a particular transmission system will create a domestic HDTV manufacturing capacity that would not otherwise exist.

Having said that, however, CBS believes that the Federal government -- through the Federal Communications Commission and the Department of Justice -- has an important role to play in assuring open and competitive markets. For example, the FCC might well choose to adopt policies requiring the reasonable and non-discriminatory licensing of any transmission technology used in whatever domestic HDTV transmission standards it selects; and the Department of Justice should strictly enforce the antitrust laws to assure vigorous competition in and the absence of entry barriers into HDTV manufacturing.

As these comments make clear, we believe the Federal government has an important role to play in assuring that American firms and the American viewing public are able to participate fully in advanced television technologies. CBS hopes to play an important role in that process as well.

Again, Mr. Chairman, CBS appreciates the opportunity afforded by your invitation, to offer its views on this important subject.

Very truly yours,



The Honorable Edward J. Markey
United States House of Representatives
Subcommittee on Telecommunications and Finance
316 House Annex 2
Washington, D.C. 20515

ADVANCED TELEVISION STANDARDS AND THEIR IMPACT ON UNITED STATES EXPORTS

Introduction and Summary

The United States today faces a challenge in the setting of world-wide technical standards for the next generation of television. Production and distribution standards for high definition television (HDTV)[1/] have potentially wide-ranging consequences on United States trade balances and on the quality of programming available to United States television viewers.

Much has been written about the potential adverse effects on U. S. jobs and trade balances or the domestic semiconductor industry should the introduction of advanced

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1/ HDTV refers to advanced television characterized by improved horizontal and vertical resolution, improved color rendition, a wider picture that corresponds more closely to the human field of vision, and stereophonic audio. The HDTV production standard adopted in the United States by the Society of Motion Picture & Television Engineers (SMPTE) and the Advanced Television Systems Committee (ATSC) calls for 1125 lines per frame and 60 fields per second. The 1125 lines were chosen by the domestic motion picture and television production industry as the minimum needed to match the quality of 35mm film, and as the most feasible means to permit down conversion to Europe's 625-line standard and the U.S.'s NTSC 525-line standard for conventional television distribution. See IEEE Spectrum, 56, 62 (Apr. 1988).

television technology result in a massive increase in the foreign content of HDTV television receivers sold in this country.[2/] Questions have been raised as to whether the selection of a particular HDTV production or transmission standard will impact that concern. We think not; we believe that it will be world-wide HDTV receiver manufacturing economics and not HDTV production or distribution standards that will determine where HDTV equipment will be built. We do not comment in detail on whether and, if so, how, the United States should attempt to effect changes in world-wide HDTV receiver manufacturing economics (the so-called "hardware" issues). We focus instead on the "software" issues -- that is, the potential adverse effects on the quality of U. S. television programming, on the quantity of American jobs in the entertainment industry and on the currently favorable U. S. trade balances in video software should the world not adopt a single uniform world-wide HDTV production standard.

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2/ High Definition Television (HDTV): Economic Analysis of Impact, American Electronics Association (November 1988)

American producers of motion pictures and television programs have inherent advantages over most of their foreign competitors due to the size of the American market and the large number of English-speaking consumers overseas. These advantages give rise to two important positive effects: first, a large United States trade surplus for these products; and second, an increase in the expenditures on programming inputs, which increases the quality of video entertainment products distributed domestically. As a result, American viewers benefit directly from the export of domestic television programs.

HDTV technology is becoming available that could change all this. On the one hand, production using HDTV equipment could reduce the costs of producing motion pictures and television programs, thereby reducing prices or increasing the output of the television industry. And HDTV could greatly enhance the value of television by producing movie-like quality for television programs. Yet, the advent of HDTV around the world is threatening the export trade in video entertainment products. If foreign countries adopt standards for HDTV which raise barriers to the export of U. S.-produced television programs, foreign demand for United States-produced video entertainment products could be impaired. This would happen if picture

quality suffered from converting United States-produced programs to conform to foreign HDTV standards or if the costs of converting United States-produced video products were high. Both of these conditions appear likely. Moreover, there is evidence that the European push for separate HDTV standards has been motivated in part by a desire to protect European program producers and to retard European imports of American programs. If this effort is successful, a United States industry with a record of trade surpluses would be injured and United States consumers would suffer a decline in the quality of the television programs they view.

The retaliatory establishment of distinctive HDTV standards in the United States would not counteract this damage to the entertainment production industry and to United States viewers since exports of United States-produced video entertainment products far exceed imports of foreign-produced video entertainment products.

The Department of State has a major role to play in the establishment of international standards. For several years, the State Department has supported the adoption of a world-wide production standard in meetings of the International Telecommunications Union (ITU) standards-coordinating body - CCIR.

Strength of United States-Produced Video Entertainment Products in World Markets

United States producers of motion pictures and television programs have benefited enormously from the current high demand for their products abroad. Foreign sales have accounted for roughly half of the total revenues from United States motion pictures and television programs for the last 20 years.[3/] The United States trade surplus in recent years in these video entertainment products has exceeded a billion dollars.[4/] Foreign sales of United States television programs alone have been estimated at $1.3 billion annually and have been predicted to grow to $3.6 billion by the end of 1992.[5/]

United States producers of motion pictures and television programs have an inherent advantage over their

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3/ Renaud and Litman, "Changing Dynamics of the Overseas Market Place for TV Programming", Telecommunications Policy, 249 (Sept. 1985).

4/ U.S. Congress, Office of Technology Assessment, Trade in Services: Exports and Foreign Revenues Special Report, OTA-ITE-316, 89 (Sept. 1986).

5/ Television/Radio Age, 26 (Oct. 3, 1988). See also Syndies Eye O'Seas Sales Boom, Variety (Feb. 18, 1987) at 1 and European appetite for U.S. programming grows, Broadcasting (Oct. 12, 1987) at 66 for discussions of the importance of foreign markets for U.S. television programs.

foreign competitors because of the size and wealth of the United States (and other English-speaking) markets.[6/] The larger potential revenues for video entertainment products in the United States mean that more creative inputs and larger budgets are devoted to United States-produced motion pictures and television programs. There are two reasons for this. First, increasing the quality of a motion picture or television program by increasing the amount spent to produce it tends to increase the demand for and hence the expected revenues from the production. The reason that popular Hollywood films have big budgets is that more expensive productions tend, on average, to be more attractive to audiences. That is, there is a positive expected relationship between the dollars spent on a program and the revenues to be derived from that program, irrespective of the size of the total market. The second basis for the American advantage in world video markets is the size and wealth of the world-wide English-speaking audience. The larger the potential market or revenues, the greater is the incentive for competitive producers to

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6/ See The Emperor's New Imperialism, The Economist (Dec. 20, 1986) at 14.

increase their investment in their programs in order to try to capture a greater share of those larger expected revenues.[7/]

American video products have larger budgets, and hence higher quality, and this contributes significantly to their dominance in the world trade in motion pictures and television programs.[8/] On the other hand, all other things equal, viewers have a natural preference to view video entertainment products in their native languages. American motion pictures and television programs are able to overcome this language barrier in foreign countries in part because of their larger budgets, which tend to give American motion pictures and television programs greater audience appeal.[9/]

7/ S. Wildman, ATV Standards and Trade in Recorded Video Entertainment, Airlie House, Airlie, VA (October 1986)These results are also derived in S. Wildman and S. Siwek, International Trade in Films and Television Programs, Appendix B (1988).

8/ See Id., Chapters 2, 3 for data showing U.S. dominance of trade in motion pictures and television programs.

9/ Data reported in Wildman and Siwek indicate average budgets for U.S.-made motion pictures were four to five times greater than average budgets of other major film-producing countries. Similar results for television programs are reported in Waterman, World

(Continued on Page 8)

A numerical example can help to illustrate the economic foundation of United States dominance of world trade in video entertainment products. Imagine that there are two countries, A and B. Country A has a population of one million; Country B has a population of ten million. The price of a theater ticket is the same $1 in each country. A very popular entertainment product in Country A, one that everyone in the country paid to see, could not have a budget over $1 million, because that is the limit of the available revenues. But comparably popular entertainment product in Country B could have a much larger budget (in this example, $10 million), simply because there are more people to see it and pay for it. Now suppose Country A and Country B are competing with each other in world markets for these products. Country B will generally have an advantage because its big budget products will tend to be more attractive to audiences in Country C, D and E than Country B's products. These effects do not depend on either country having a monopolist film producer, because

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9/ (Continued from Page 7)
Television Trade: The Economic Effects of Privatization and New Technologies, Telecommunications Policy (June 1988) at 141.

the benefits of a larger audience are felt even with a competitive industry.

The substantial foreign revenues earned by American motion pictures and television programs in turn have feedback effects on their quality. For example, foreign revenues for television programs accounted for $1.3 billion or 22% of the nearly $6 billion spent on United States-produced programs in 1988.[10/] Because United States television producers can anticipate receiving substantial foreign revenues from successful productions, they can invest more dollars in order to increase the audience appeal of their productions. United States viewers benefit from this competition because the budgets and quality of United States television programs are increased as a result. Indeed, because of the potential for foreign revenues, many productions are initially produced at a deficit in the United States market, a deficit which is recovered from foreign sales. American viewers benefit because the production values of the motion pictures and television programs they see are greater than they would be if producers' budgets were limited to domestic revenues.

10/ Television/Radio Age, 26 (Oct. 3, 1988).

If United States producers were denied or hampered in their ability to compete for these foreign revenues, the average quality of United States television programs would decline and marginal programs may be lost altogether, reducing the quality and diversity of United States-produced video entertainment products.

Potential Effects of HDTV Standards on Trade in Video Entertainment Products

The way in which HDTV standards are adopted throughout the world can adversely affect international trade in television programs and motion pictures.

With the advent of HDTV, the uniformity of electronic production standards becomes more important. To understand the potential problem, it is important to distinguish between production standards and transmission standards. HDTV production standards establish how and with what equipment HDTV programs are produced. HDTV transmission standards, on the other hand, determine the method by which HDTV programs are transmitted and received by viewers. HDTV transmission standards affect the design of television transmitters, cable, fiber optical equipment, VCRs and television sets. The two types of standards are related, as discussed below, in the sense that a particular

production format must be convertible to a particular transmission format. Currently, most United States exports of motion pictures and television programs are produced using 35mm film.[11/] It has become relatively easy and inexpensive to convert 35mm film to any existing conventional transmission standard for television broadcast, whether to the United States standard (called "NTSC") or to the various European standards (PAL or SECAM). Because 35mm film is the de facto world-wide production standard today, the existence of different electronic transmission standards worldwide has not seriously hindered trade in motion pictures and television programs.

The Development of Electronic Production Standards for Motion Pictures and Television Programs

The United States 1125/60 SMPTE 240M production

11/ Motion picture production may be impacted by HDTV because cost or other considerations may begin to change the medium in which films are made, with electronic cinematography becoming a viable option to 35mm film making. See Variety, 95 (Oct. 5, 1988). Currently 80-85% of all prime time programs are produced in 35mm film. See Television--The Challenge of the Future, Address by Joseph A. Flaherty to SMPTE Winter Conference (Feb. 7, 1987) at 4.

standard was approved in 1987 by the Society of Motion Picture and Television Engineers (SMPTE) and the Advanced Television Systems Committee (ATSC) after four years of study, analysis and modification. Several reasons led to their approval of the 1125/60 system as an American standard: First, its quality. The 1125/60 production system offered higher resolution, better color rendition, wider aspect ratio and stereophonic sound; in toto, the system produced pictures with over 1000 active scanning lines and a picture quality equivalent to 35mm film. The quality of the 1125/60 system made electronic cinematography a realistic alternative to 35mm film for movie makers. Second, its utility and efficiency. The 1125/60 production system is supported by a wide range of production equipment, including cameras and tape conversion and editing equipment. Utilizing this equipment may lead to significant economies in the production of movies and television. It has been estimated that producing a one hour television drama in HDTV can reduce production costs by 15% compared to 35mm film.[12/] Animation, computer

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12/ In Search For Visual Perfection, Budget Referees HD vs. Film Fight, Variety (Oct. 5, 1988) at 95. See also

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graphics, and many special effects are easier or in some cases only possible with HDTV video production.[13/] Lower cost HDTV production would be useful even without HDTV distribution because HDTV-produced programs can be converted easily to 35mm film for theatrical exhibition[14/] as well as to existing conventional (NTSC) videotape for television transmission.[15/] Thus, there has been considerable impetus to move to HDTV production even before HDTV distribution to viewers is possible. And third, its potential for world-wide usage. The 1125/60 production system is capable of down-conversion to all

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12/ (Continued from Page 12)
R. Stow, The Economics of High Definition Television Production, (Mar. 9, 1987).

13/ R. Stow, HDTV--Making It Happen, Paper delivered at Probe Research Inc. HDTV Symposium (Nov. 16, 1988) at 7.

14/ M. Sugimoto, The Technical Characteristics of HDTV, (Dec. 1986) at 3.

15/ J. Rossi, and R. McMann, The 1125 HDTV Production System and Its Relationship to NTSC and HDTV Broadcast Systems, (Jan. 13, 1988) at 3. In fact, conversion of HDTV programs produced with an 1125/60 production system for broadcast on conventional (NTSC) American television results in a higher quality product than if the program had been produced instead with 35mm film and converted to NTSC. See Stow, supra n.13 at 4. In addition, the cost of this conversion is low.

existing transmission systems (NTSC and PAL/Secam). In light of its quality and utility and the benefits of low-cost, flexible program interchange, there has been great expectation that the 1125/60 production standard might find world-wide acceptance.

A significant problem would occur, however, if different HDTV standards were adopted by our trading partners. As noted, United States standards organizations have adopted an 1125/60 production standard, and the United States government has proposed the 1125/60 standard as a world-wide production standard. So have Japan and Canada. Europe is considering the so-called "Eureka" 1250/50 HDTV standard. Program material produced with equipment built to the U.S. 1125/60 standard is not easily convertible to use on equipment built to the 1250/50 standard. Indeed, no one has yet attempted such conversions in either direction.

As noted above, the 1125/60 production standard was developed in part to facilitate conversion from HDTV to conventional transmission standards, but convertibility from a 60Hz HDTV standard to a 50Hz HDTV standard has not been proven practicable. That is, one can easily down-convert from 1125/60 to virtually any transmission standard, but not sideways, from one HDTV production standard to another. Based on the experience in converting

videotape from one conventional broadcast television standard to another, it is widely believed that converting HDTV programs from one production standard to another is likely to be very costly and to result in a degradation of picture quality.[16/]

If United States and European HDTV standards are not convertible, or convertible only at substantial cost or loss of quality, there could be serious repercussions for the United States video entertainment industry. In that event, the absence of a single world-wide HDTV production standard would reduce the level of foreign revenues that United States-produced motion pictures and television programs earn. The result will be a needless loss of trade opportunities. Equally serious will be the deterioration in the quality and diversity of programs viewed by United

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16/ See High-Definition Television, Memorandum of the Public Broadcasting Corporations of the Federal Republic of Germany, (Jan. 13, 1988) at 8, 9. See also HDTV to HDTV Standards Conversion: A Prime Motive for a Single Production Standard, Sony Corp. of America HDTV Production Series No. 5 (Apr. 1988); Interview with H. Yushkiavitshus, Soviet Vice Chairman of Radio & Television, HDTV Newsletter (November/December 1988) ("I think this time [the problem of different national standards] is even worse because transcoding from one system to another system in high definition is expensive and you are losing quality.")

States consumers as budgets of United States productions are reduced because of the diminished ability of United States producers to obtain foreign revenues.

Conflicting HDTV production standards could thus raise the costs to United States producers competing abroad and impair the quality of their productions in foreign markets, thereby creating a non-tariff trade barrier. This is analogous to the foreign language handicap already affecting United States producers in non-English speaking countries. If the absence of a single world-wide production standard is similar in effect to language barriers, one can predict that sales of United States produced television programs and films could be substantially reduced relative to what they could be with readily-convertible standards.[17/]

Europe's Strategy to Use Production Standards as a Non-Tariff Trade Barrier

The European consumer electronics industry has been successful in the past in using standards to discourage

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17/ For example, United States produced films account for 90% of movie attendance in the U.K., but less than 50% in West Germany, France, and Italy. Wildman and Siwek, supra n.7, at 19.

imports of (mainly Japanese) television sets, largely because of patent control. For example, Telefunken, which had developed the PAL television system used in most of Europe, excluded Japanese large-screen television sets for several years because it controlled the patents on PAL. The French industry developed the SECAM standard for similar reasons.[18/] Today, Europeans see the opportunity to use HDTV standards not merely to protect the European consumer electronics industry from Japanese imports, but also to protest European "culture" and producers from American imports.[19/]

The French government has taken the lead in trying to discourage "cultural pollution," especially by English-language programming. One major manifestation of the European attempt to limit sales of American video products is the movement to impose minimum local content

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18/ See generally, Booz, Allen and Hamilton, "EEC Consumer Electronics--Industrial Policy: Final Report," Brussels: EEC Information Technologies Task Force, June 1985.

19/ This is symptomatic of a broader European strategy to use EEC standards as a non-tariff trade barrier. See "Obstacle Course - As EC Markets Unite, U. S. Exporters Face New Trade Barriers", Wall Street Journal, January 19, 1989 at A1.

requirements on European television broadcasts, and to reserve broadcast time for European productions.

There is evidence that the European community is adopting its separate "Eureka" 1250/50 standards for HDTV in part to protect its motion picture and program production industries from United States competition. For example, in a recent public letter to the EEC, French President Mitterrand suggests that the Eureka approach may help deal with "...the risks that European culture and industry will be exposed to if we fail to react to the current situation: Europe imports close to half of the cinema and television programmes it broadcasts. Out of each one hundred hours of programming acquired in Europe, only eight come from another European country. Europe exports also very little, since its programmes account for less than 15% of world exports. In order to address this "problem", President Mitterrand suggests the subsidization of European video producers and the imposition of foreign content restrictions on European television."[20/]

20/ Letter from President Mitterrand to EEC President Jacques Delors, October 7, 1988, as quoted in EUROPE Monday/Tuesday 10/11 October 1988 at 7.

There Is No Justification for Abandonment of U.S. Support for a Single World-Wide Production Standard

Some have argued that prospects for a uniform world-wide HDTV production standard are doomed because of the prospects for success of European protectionist efforts.[21/] This reflects a defeatist attitude not justified by developments to date.

An international production standard may be achieved through de facto acceptance by the preponderance of international producers and broadcast organizations or through formal acceptance through the CCIR or a combination of both. The increasing use of 1125/60 production equipment in the United States, Canadian and Japanese motion picture, television, and advertising communities evidence the very real possibility that the 1125/60 production system is already becoming an important de facto production standard.

The prospects for formal acceptance of the 1125/60 production standard by CCIR are quite real. The 1986 meeting of the CCIR deferred a decision on a single

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21/ NBC has embraced this position and has proposed a 1050/59.94 domestic production standard. "NBC Unveils new HDTV standard", Broadcasting (Oct. 17, 1988) at 31.

world-wide international standard until its next Plenary Assembly in 1990. In the interim, Soviet-sponsored international tests of the European and American HDTV production systems are scheduled to begin next month in Moscow. Those tests are motivated by the strong desire of the Soviet Union to see a single world-wide production standard.[22/] It is quite possible that selection by the Soviet Union of a particular production system as its standard will lead to similar decisions by the five Eastern European bloc countries. Should the Soviet Union select the same 1125/60 system approved by the United States, Canada and Japan, much of the third world may follow -- leaving the Western European administrations isolated and with little hope for world-wide economies of scale for European manufacturers. By the time of the next Extraordinary Meeting of CCIR Study Group 11 in May 1989 -- scheduled for the sole purpose of debating the merits of the United States/Canadian proposal versus that of the EEC -- preliminary results of the Soviet tests should be known.

The CCIR recommends, but does not "set", technical

22/ Interview with H. Yushkiavitshus, Soviet Vice Chairman of Radio & Television, HDTV Newsletter, November/December 1988 at 24.